

**This electronic collection of documents is provided  
for the convenience of the user  
and is Not a Certified Document –**

**The documents contained herein were originally issued  
and sealed by the individuals whose names and license  
numbers appear on each page, on the dates appearing  
with their signature on that page.**

**This file or an individual page  
shall not be considered a certified document.**

**CONTRACT: C204311 TIP PROJECT: 15BPR.31**

**STRUCTURES**

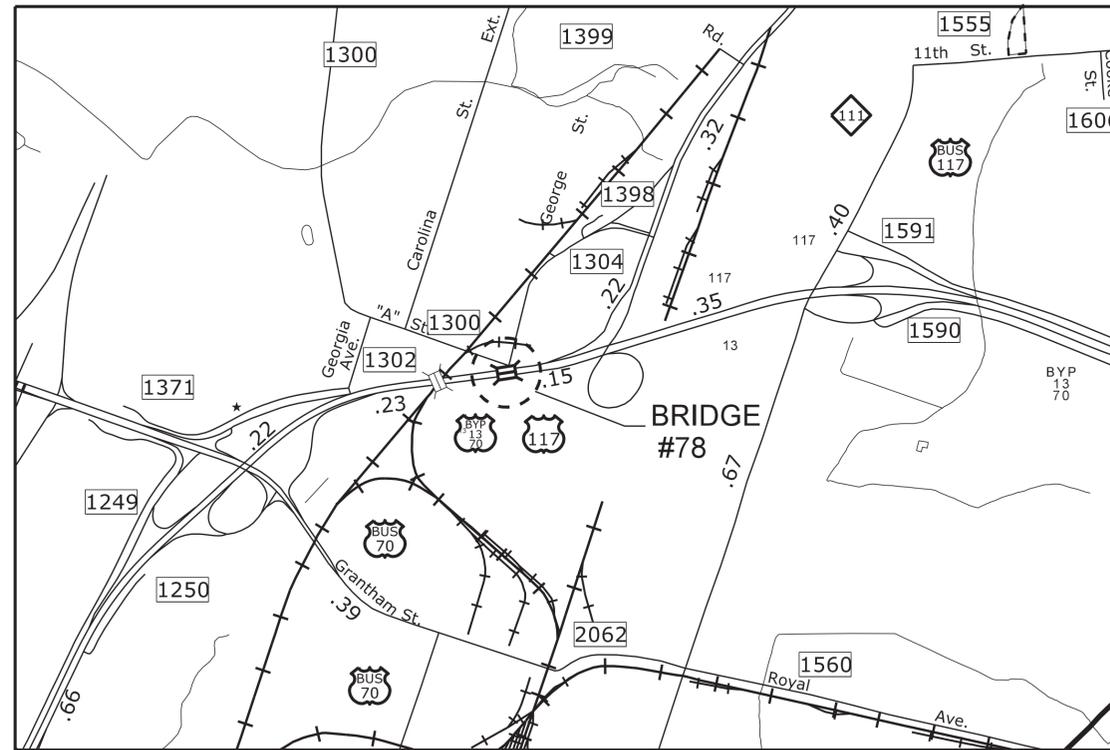


**STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
WAYNE COUNTY**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	<b>15BPR.31</b>	<b>1</b>	
STATE PROJECT NO.	F. A. PROJ. NO.	DESCRIPTION	

LOCATION: WAYNE COUNTY BRIDGE #78 ON US 70/US 13 OVER SR 1304 (N. GEORGE STREET)

TYPE OF WORK: BRIDGE PRESERVATION - POLYESTER POLYMER CONCRETE (PPC) OVERLAY AND JOINT REPAIR, REPAIRS TO DAMAGED STEEL, PAINTING EXISTING STRUCTURE, SUBSTRUCTURE REPAIRS.



VICINITY MAP - WAYNE COUNTY



**DESIGN DATA**

ADT 2012 = 40,000

**PROJECT LENGTH**

PROJECT LENGTH = 0.017 MI

Prepared for:  
**STRUCTURES MANAGEMENT UNIT**  
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2018 STANDARD SPECIFICATIONS

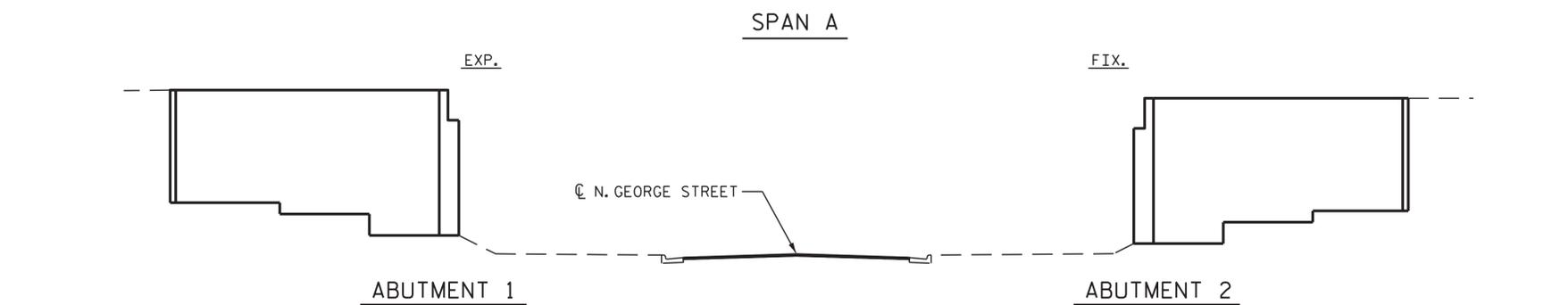
LETTING DATE:  
FEBRUARY 19, 2019



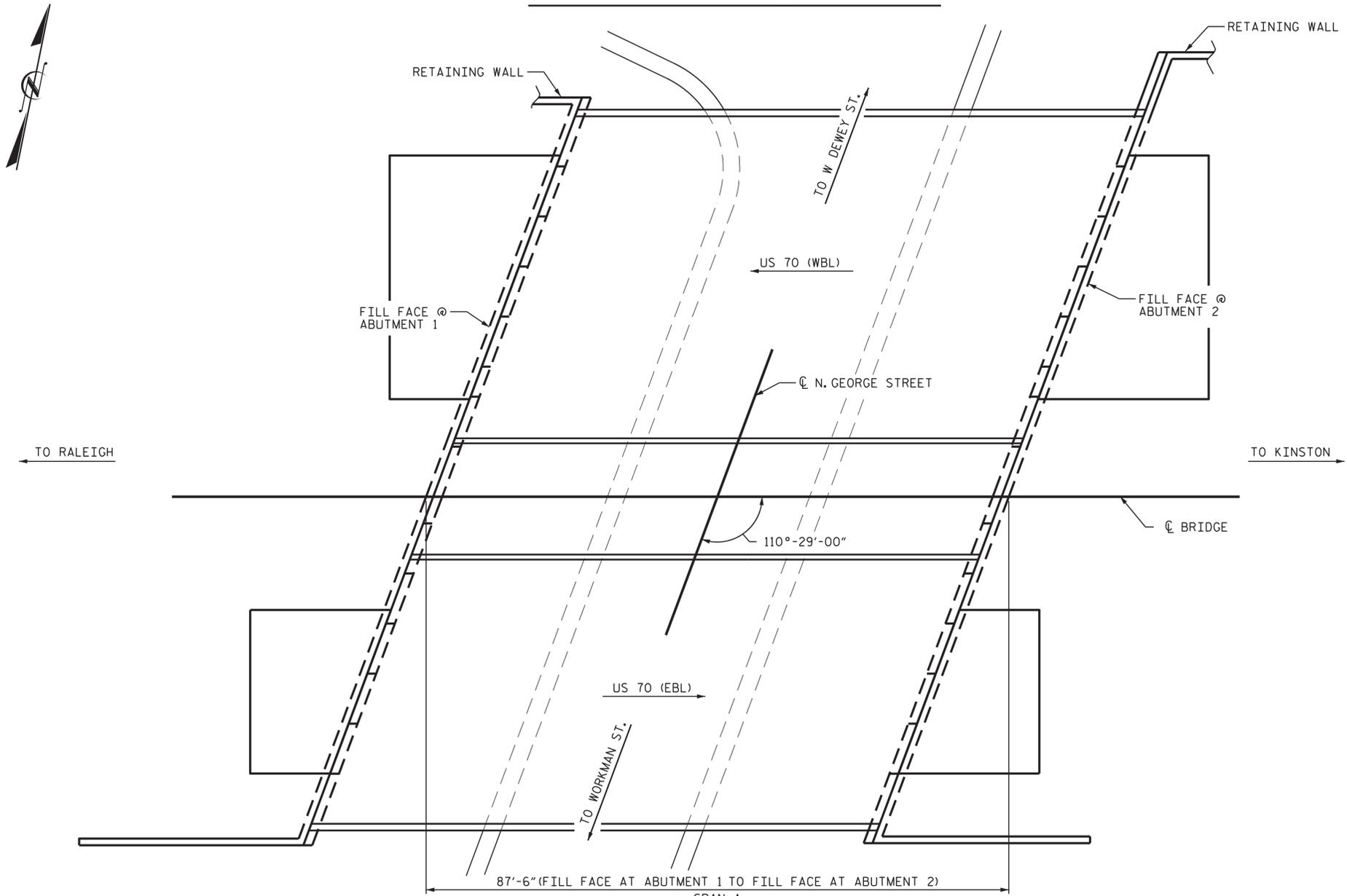
JENNIFER MCROY, PE  
PROJECT ENGINEER

**VOLKERT**

5540 Centerview Drive, Suite 305  
Raleigh, NC 27606  
Tel. 919-854-0344 Fax. 919-854-0355  
NC License No. F-0765



SECTION ALONG CL ROADWAY



PLAN

(PILES AND FOOTINGS ARE NOT SHOWN FOR CLARITY)

NOTES

PROFILE INFORMATION IS TAKEN FROM THE ORIGINAL PLAN AND THE ROUTINE INSPECTION REPORT DATED 6/27/2017

BRIDGE ORIENTATION CONFORMS TO EXISTING BRIDGE PLANS.

SCOPE OF WORK

- REMOVE EXISTING ASPHALT OVERLAY AND ASPHALT PLUGS FROM BRIDGE DECK AND APPROACH SLAB ON EBL.
- REMOVE EXISTING JOINT MATERIAL.
- PARTIALLY REMOVE BRIDGE DECK AND APPROACH SLAB CONCRETE BY SCARIFICATION AND SHOTBLASTING METHODS.
- PERFORM DECK REPAIRS IN PREPARED AREAS.
- OVERLAY PREPARED BRIDGE DECK AND APPROACH SLAB WITH POLYESTER POLYMER CONCRETE.
- RECONSTRUCT BRIDGE JOINTS AND INSTALL SILICONE JOINT SEALS.
- GROOVE POLYESTER POLYMER CONCRETE.
- MILL EBL APPROACHES.
- PLACE APPROACH PAVING IN EBL.
- REPAIR SUBSTRUCTURE USING EPOXY RESIN INJECTION, SHOTCRETE, AND CONCRETE.
- REPAIR DAMAGED STEEL BEAM AND DIAPHRAGM.
- PAINT EXISTING STEEL BEAMS.

I HEREBY CERTIFY THAT THIS STRUCTURE WAS REHABILITATED ACCORDING TO THESE PLANS OR AS NOTED HEREIN.

DATE \_\_\_\_\_

RESIDENT ENGINEER \_\_\_\_\_

PROJECT NO. 15BPR.31  
WAYNE COUNTY  
 BRIDGE NO: 950078

SHEET 1 OF 2



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**GENERAL DRAWING**

FOR BRIDGE ON  
 US 70/US 13  
 OVER SR 1304  
 (N. GEORGE STREET)

**VOLKERT**

5540 Centerview Drive, Suite 305  
 Raleigh, NC 27606  
 Tel. 919-854-0344 Fax. 919-854-0355  
 NC License No. F-0765

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1
1			3			TOTAL SHEETS
2			4			16

DRAWN BY : P.N.HOLDER DATE : 08/18  
 CHECKED BY : D.A.GLADDEN DATE : 09/18



LATITUDE: 35°23'56.2"; LONGITUDE: 77°59'39.85"

**LOCATION SKETCH**

INFORMATION INDICATED ON THE LOCATION SKETCH SHALL BE CONSIDERED GENERAL INFORMATION, ONLY. THE CONTRACTOR SHALL CONFIRM, THROUGH OTHER SOURCES, SPECIFIC INFORMATION REGARDING BRIDGES, ROADWAYS, UTILITIES, THE SURROUNDING AREA, AND ANY OTHER ASPECTS THAT MAY BE NECESSARY TO PERFORM AND COMPLETE THE PROJECT.

**NOTES**

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR SUMMARY OF QUANTITIES TABLE.

QUANTITIES HAVE BEEN INCREASED DUE TO THE POTENTIAL FOR FURTHER DETERIORATION SINCE THE FIELD INSPECTION.

CONCRETE REPAIRS MAY BE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

IT IS THE CONTRACTOR'S RESPONSIBILITY TO FOLLOW ALL STATE AND FEDERAL SAFETY REQUIREMENTS.

FOR CONTROL OF TRAFFIC AND LIMITS ON PHASING OF CONSTRUCTION, SEE TRANSPORTATION MANAGEMENT PLANS.

EXISTING JOINTS SHALL BE SEALED PRIOR TO BEGINNING REPAIRS OF BRIDGE DECK.

LONGITUDINAL CONSTRUCTION JOINTS OF OVERLAYS SHALL BE LOCATED ALONG THE CENTERLINE OR EDGE OF TRAVEL LANE.

FOR SCARIFYING BRIDGE DECK, SHOTBLASTING BRIDGE DECK, AND CLASS II SURFACE PREPARATION, SEE OVERLAY SURFACE PREPARATION FOR POLYESTER POLYMER CONCRETE SPECIAL PROVISION.

THE EXISTING BRIDGE DECK SHALL BE REPAIRED AS SHOWN ON THE PLANS OR AS DETERMINED BY THE ENGINEER AFTER SCARIFICATION AND PRIOR TO BRIDGE DECK SHOTBLAST AND APPLICATION OF THE PPC OVERLAY. UNLESS OTHERWISE APPROVED, SUCH LOCATIONS SHALL BE REPAIRED WITH PPC.

FOR CONCRETE DECK REPAIR FOR PPC OVERLAY, PPC MATERIALS, AND PLACING & FINISHING PPC OVERLAY, SEE POLYESTER POLYMER CONCRETE BRIDGE DECK OVERLAY SPECIAL PROVISION.

FOR PAINTING CONTAINMENT, POLLUTION CONTROL, AND CLEANING & REPAINTING BRIDGE, SEE PAINTING EXISTING STRUCTURE SPECIAL PROVISION.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR POURABLE SILICONE JOINT SEALANT, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CRANE SAFTY, SEE SPECIAL PROVISIONS.

FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

FOR REPAIR OF DAMAGED STEEL BEAMS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

**TOTAL BILL OF MATERIAL**

INCIDENTAL MILLING	ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C	ASPHALT BINDER FOR PLANT MIX	GROOVING BRIDGE FLOORS	POLLUTION CONTROL	* CLASS II SURFACE PREPARATION	SHOTCRETE REPAIRS	EPOXY RESIN INJECTION	CONCRETE REPAIRS	REPAIRS TO DAMAGED STEEL OF BRIDGE #--	CLEANING AND REPAINTING OF BRIDGE #--	PAINTING CONTAINMENT FOR BRIDGE #--	POURABLE SILICONE JOINT SEAL	POLYESTER POLYMER CONCRETE MATERIALS	* CONCRETE DECK REPAIR FOR POLYESTER POLYMER CONCRETE OVERLAY	PLACING AND FINISHING POLYESTER POLYMER CONCRETE OVERLAY	SCARIFYING BRIDGE DECK	SHOTBLASTING BRIDGE DECK	TYPE I BRIDGE JACKING FOR BRIDGE #--
SQ. YDS.	TONS	TONS	SQ. FT.	LUMP SUM	SQ. YDS.	CU. FT.	LF	CU. FT.	LUMP SUM	LUMP SUM	LUMP SUM	LF	CU. YD.	SQ. YDS.	SO. YDS.	SO. YDS.	SO. YDS.	EA.
2302	194.3	11.7	8893	LUMP SUM	* 23.6	11.5	120.0	20.4	LUMP SUM	LUMP SUM	LUMP SUM	197.0	42.8	* 23.6	1078	1078	1078	1

\* CLASS II SURFACE PREPARATION AND CONCRETE DECK REPAIR FOR PPC OVERLAY ARE NOT ANTICIPATED. TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSES, IN CASE UNANTICIPATED CLASS II SURFACE PREPARATION AREAS ARE ENCOUNTERED.

PROJECT NO. 15BPR.31  
 WAYNE COUNTY  
 BRIDGE NO. 950078

SHEET 2 OF 2



**VOLKERT**

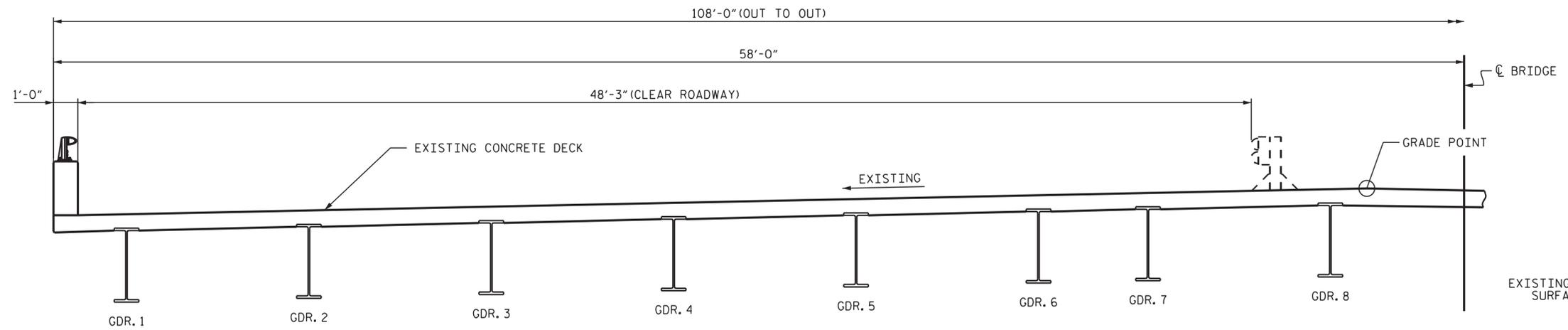
5540 Centerview Drive, Suite 305  
 Raleigh, NC 27606  
 Tel. 919-854-0344 Fax. 919-854-0355  
 NC License No. F-0765

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

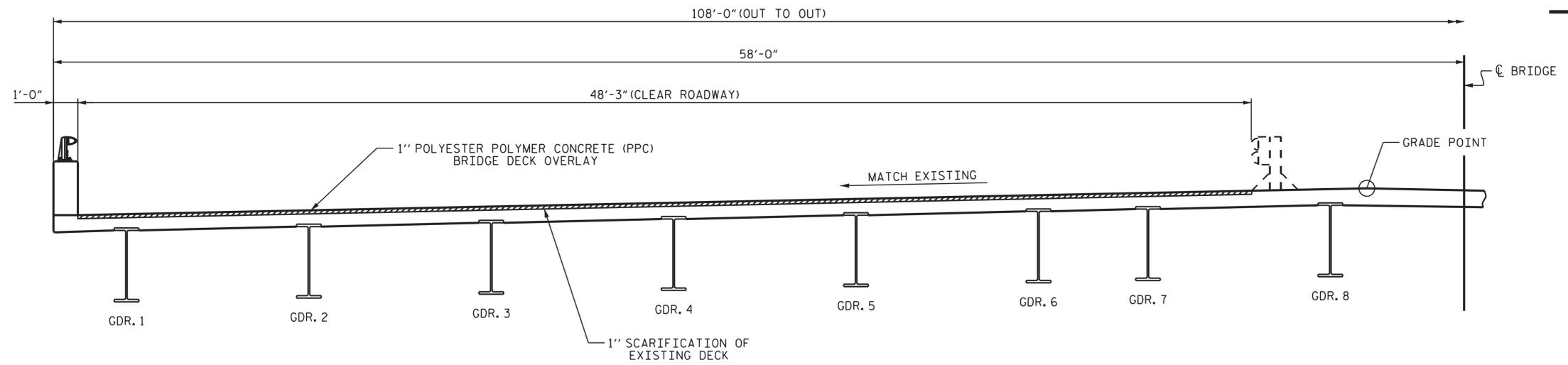
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**GENERAL DRAWING**  
 FOR BRIDGE ON US 70/US 13  
 OVER SR 1304  
 (N. GEORGE STREET)

DRAWN BY : R.G.BEAUCHAMP DATE : 08/18  
 CHECKED BY : P.N.HOLDER DATE : 09/18

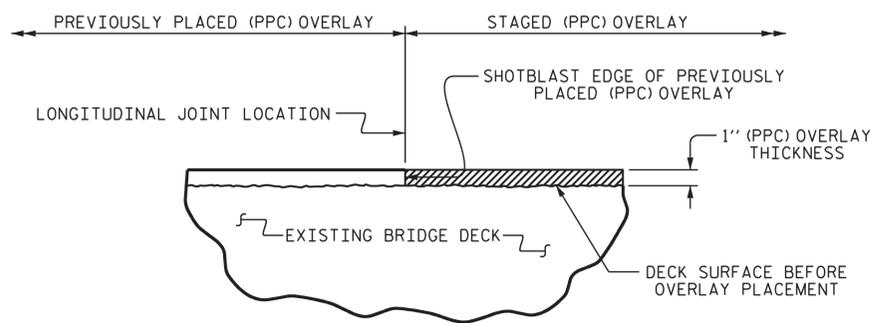
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			TOTAL SHEETS
2			4			16



**EXISTING TYPICAL SECTION (WBL)**



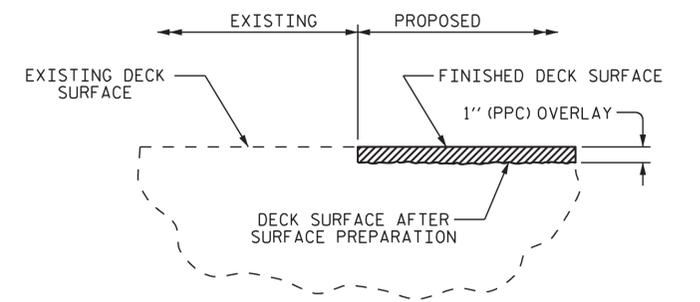
**PROPOSED TYPICAL SECTION (WBL)**



**STAGED POLYESTER POLYMER CONCRETE OVERLAY JOINT (AS NEEDED)**

**NOTES**

SEE TRANSPORTATION MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF OVERLAY SURFACE PREPARATION AND POLYESTER POLYMER CONCRETE PLACEMENT.



**DETAIL OF POLYESTER POLYMER CONCRETE OVERLAY**

PROJECT NO. 15BPR.31  
WAYNE COUNTY  
 BRIDGE NO: 950078



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**TYPICAL SECTION AND PPC OVERLAY DETAIL (WBL)**

DRAWN BY : P.N.HOLDER DATE : 08/18  
 CHECKED BY : D.A.GLADDEN DATE : 09/18

04-JAN-2019 10:33  
 \*\*\*\*\*SDGN\*\*\*\*\*  
 david.gladden AT C-160003

**VOLKERT**  
 5540 Centerview Drive, Suite 305  
 Raleigh, NC 27606  
 Tel. 919-854-0344 Fax. 919-854-0355  
 NC License No. F-0765

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			S-3
2			4			16

### AS-BUILT REPAIR QUANTITY TABLE

#### TOP OF DECK REPAIRS (WBL)

##### APPROACH SLAB @ ABUTMENT 1

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	77 SY	
CLASS II SURFACE PREPARATION	0.0 SY	
CONCRETE DECK REPAIR FOR PPC OVERLAY	0.0 SY	
SHOTBLASTING BRIDGE DECK	77 SY	
PPC MATERIALS	2.1 CY	
PLACING AND FINISHING PPC OVERLAY	77 SY	
GROOVING BRIDGE FLOORS	619 SF	

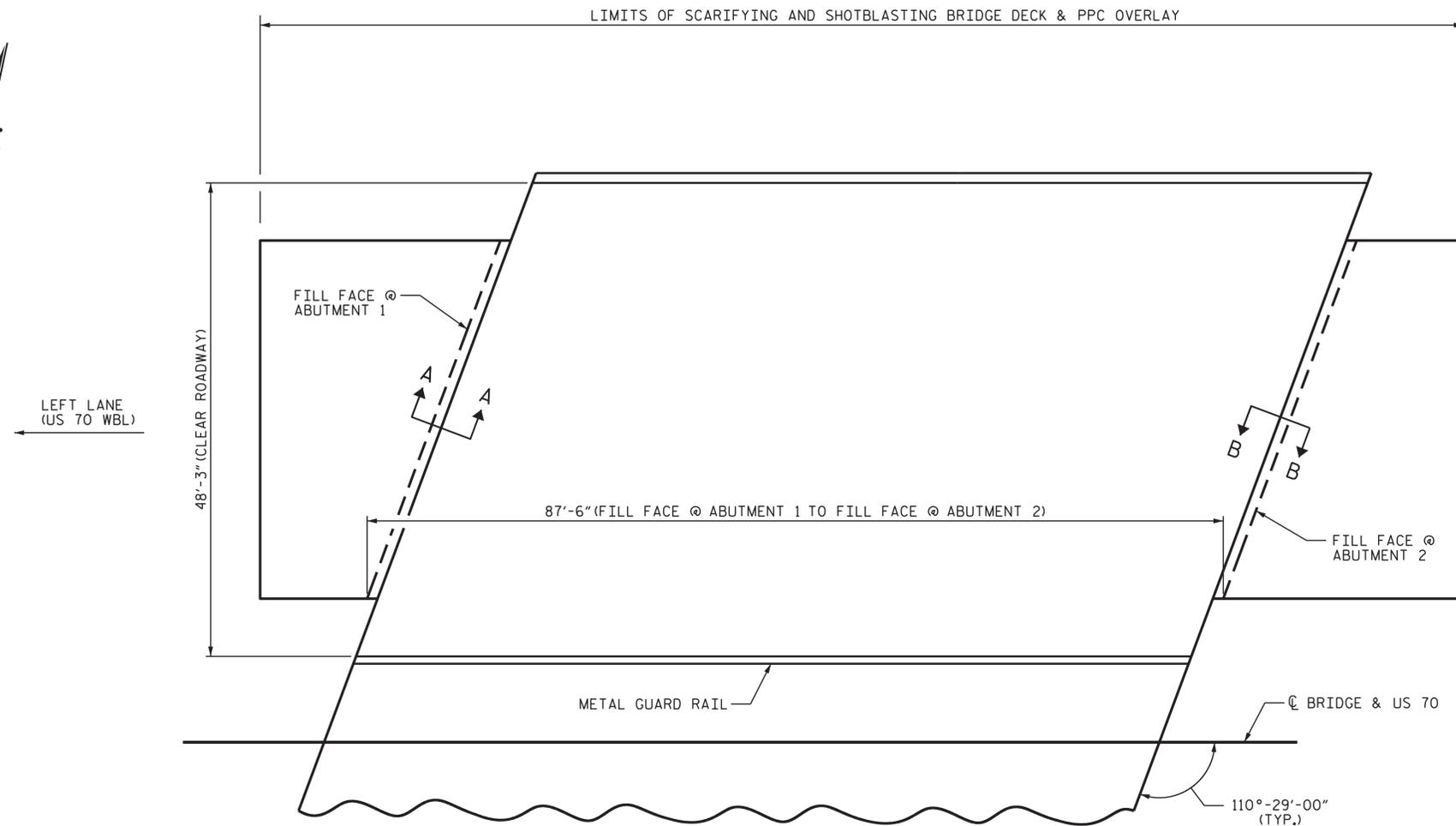
##### SPAN A

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	458 SY	
CLASS II SURFACE PREPARATION	0.0 SY	
CONCRETE DECK REPAIR FOR PPC OVERLAY	0.0 SY	
SHOTBLASTING BRIDGE DECK	458 SY	
PPC MATERIALS	12.7 CY	
PLACING AND FINISHING PPC OVERLAY	458 SY	
GROOVING BRIDGE FLOORS	3847 SF	

##### APPROACH SLAB @ ABUTMENT 2

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	77 SY	
CLASS II SURFACE PREPARATION	0.0 SY	
CONCRETE DECK REPAIR FOR PPC OVERLAY	0.0 SY	
SHOTBLASTING BRIDGE DECK	77 SY	
PPC MATERIALS	2.1 CY	
PLACING AND FINISHING PPC OVERLAY	77 SY	
GROOVING BRIDGE FLOORS	619 SF	

QUANTITIES IN TABLE REPRESENT ESTIMATED VALUES OF CLASS II SURFACE PREPARATION AND CONCRETE DECK REPAIR FOR PPC OVERLAY AFTER REMOVAL OF UNSOUND CONCRETE (MINIMUM 2" CLEAR TO SAWCUT). SEE OVERLAY SURFACE PREPARATION FOR POLYESTER POLYMER CONCRETE SPECIAL PROVISION.



PLAN OF SPAN A (WBL)

#### NOTES

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE AS-BUILT REPAIR QUANTITY TABLE.

FOR SECTION A-A AND B-B, SEE "JOINT REPAIR DETAILS (WBL)" SHEET.

FOR POURABLE SILICONE JOINT SEALANT, SEE SPECIAL PROVISIONS.

PROJECT NO. 15BPR.31  
WAYNE COUNTY  
 BRIDGE NO: 950078



1/5/2019

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

PLAN OF SPAN A  
 LEFT LANE (WBL)

DRAWN BY : P.N.HOLDER DATE : 08/18  
 CHECKED BY : D.A.GLADDEN DATE : 09/18

**VOLKERT**

5540 Centerview Drive, Suite 305  
 Raleigh, NC 27606  
 Tel. 919-854-0344 Fax. 919-854-0355  
 NC License No. F-0765

DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			16

**NOTES**

THE CONTRACTOR SHALL FIELD VERIFY THE EXISTING FORMED OPENING PRIOR TO OBTAINING JOINT MATERIAL.

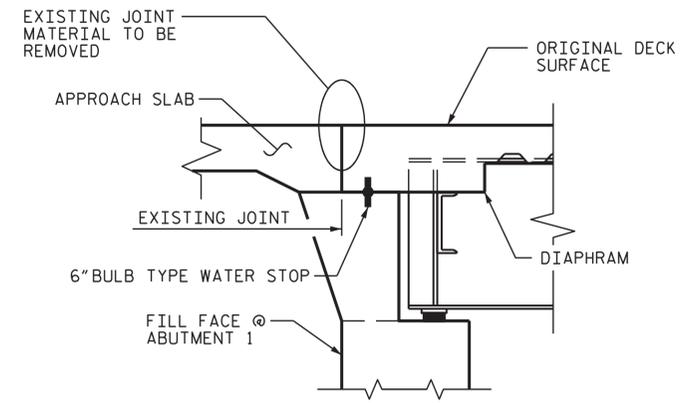
THE CONTRACTOR WILL NOT BE PERMITTED TO FORM THE JOINTS FOR THE JOINT SEALS IN LIEU OF SAWING THE JOINTS.

FOR POURABLE SILICONE JOINT SEALANT, SEE SPECIAL PROVISIONS.

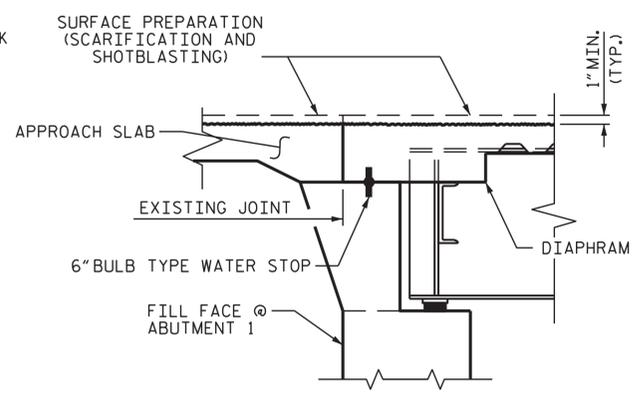
POURABLE SILICONE JOINT SEALANT AND BACKER ROD SHALL BE INSTALLED AS PER MANUFACTURER'S RECOMMENDATION.

THE INSTALLED SILICONE JOINT SEALS SHALL BE WATERTIGHT.

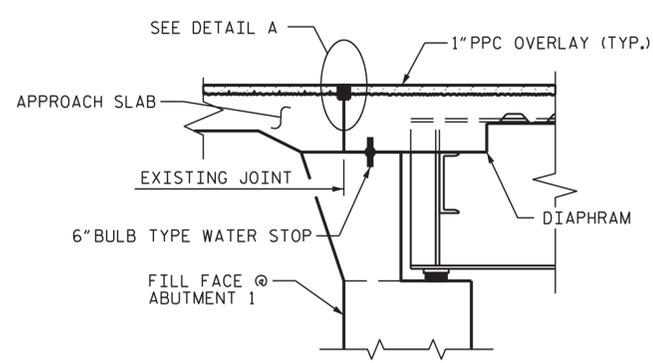
FOR LOCATION OF SECTION A-A & B-B, SEE PLAN OF SPAN SHEETS.



**EXISTING JOINT**



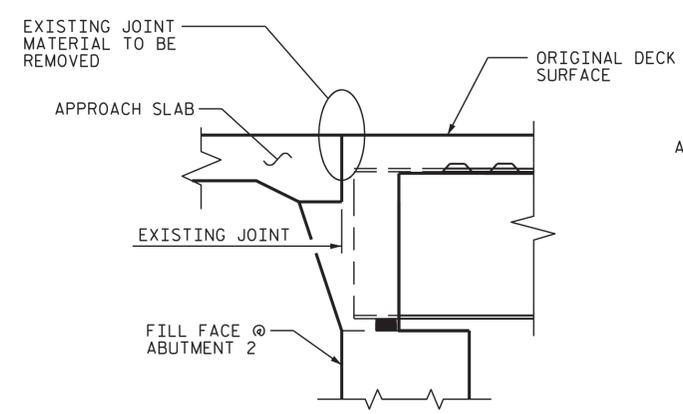
**PROPOSED JOINT**



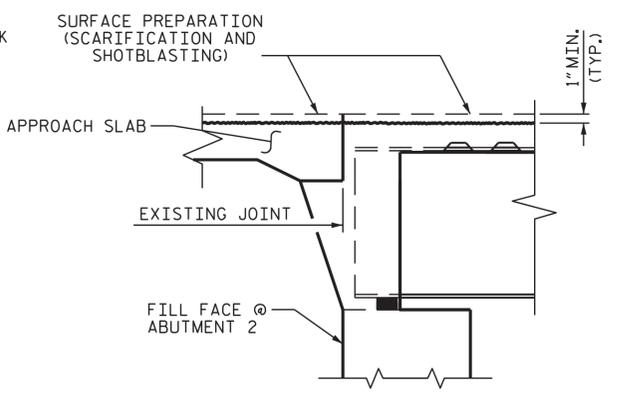
**PROPOSED JOINT**

**JOINT INSTALLATION SEQUENCE AT ABUTMENT 1 (WBL)**

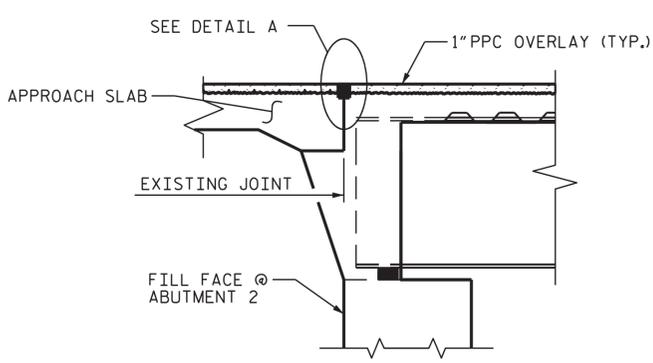
(SECTION A-A)



**EXISTING JOINT**



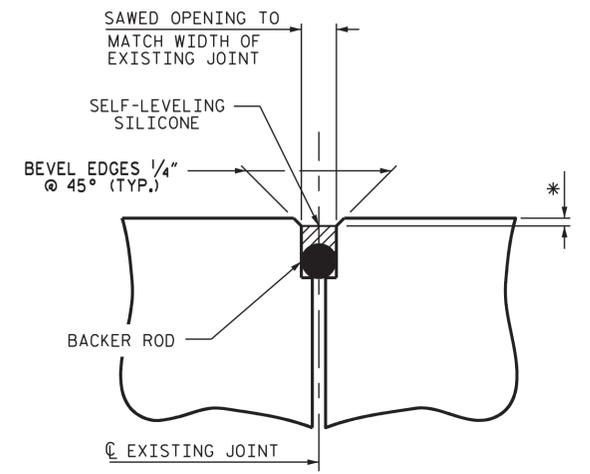
**PROPOSED JOINT**



**PROPOSED JOINT**

**JOINT INSTALLATION SEQUENCE AT ABUTMENT 2 (WBL)**

(SECTION B-B)



**DETAIL A**

\* SILICONE JOINT SEALANT SHALL BE RECESSED AS PER MANUFACTURER'S RECOMMENDATIONS.

PROJECT NO. 15BPR.31  
WAYNE COUNTY  
 BRIDGE NO: 950078



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

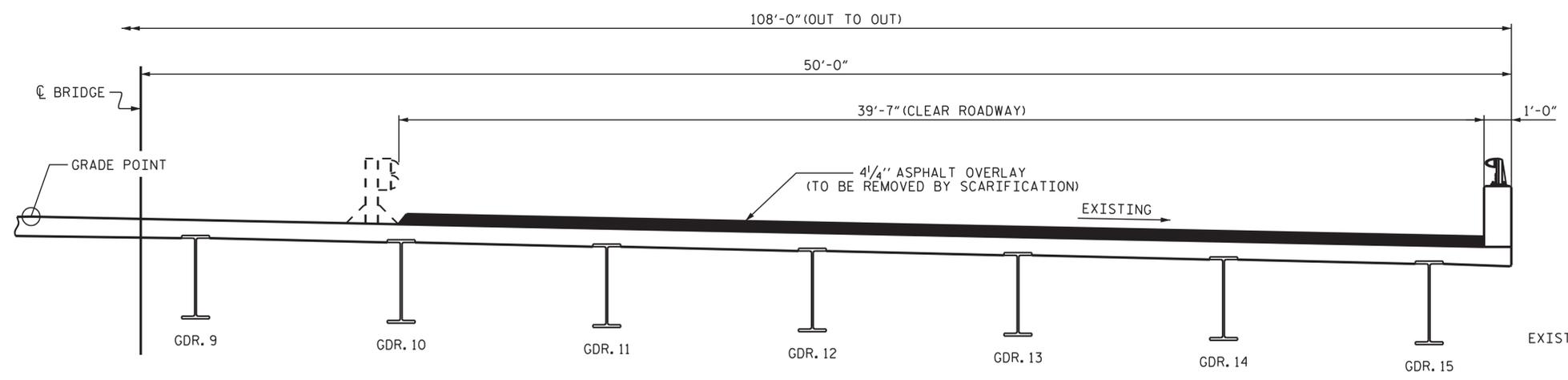
**JOINT REPAIR  
 DETAILS  
 (WBL)**

**VOLKERT**  
 5540 Centerview Drive, Suite 305  
 Raleigh, NC 27606  
 Tel. 919-854-0344 Fax. 919-854-0355  
 NC License No. F-0765

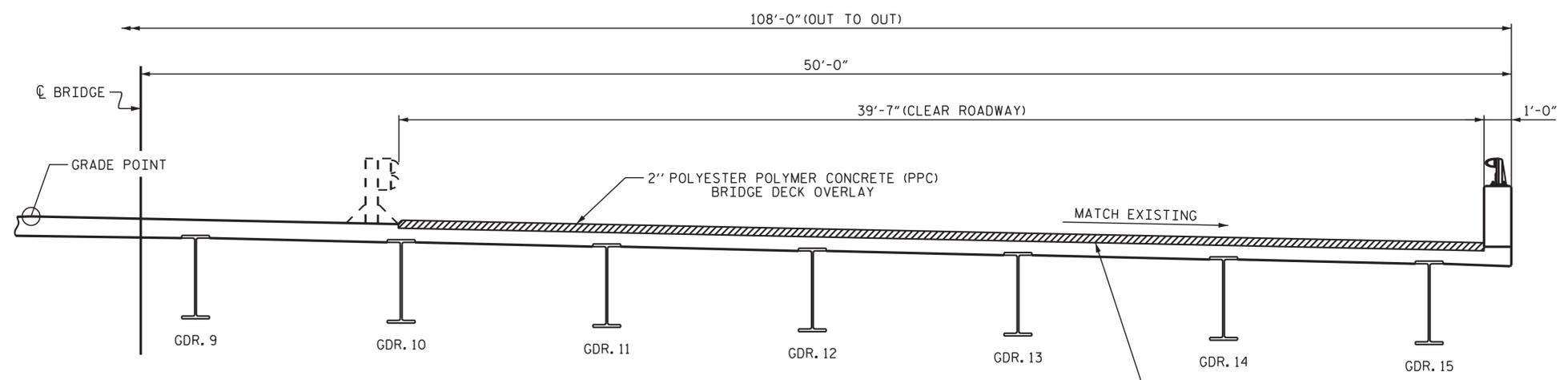
DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			S-5
2			4			16

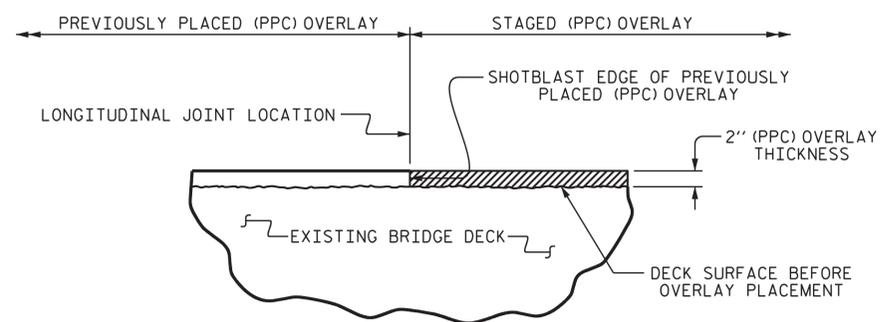
DRAWN BY : P.N.HOLDER DATE : 09/18  
 CHECKED BY : D.A.GLADDEN DATE : 09/18



**EXISTING TYPICAL SECTION (EBL)**

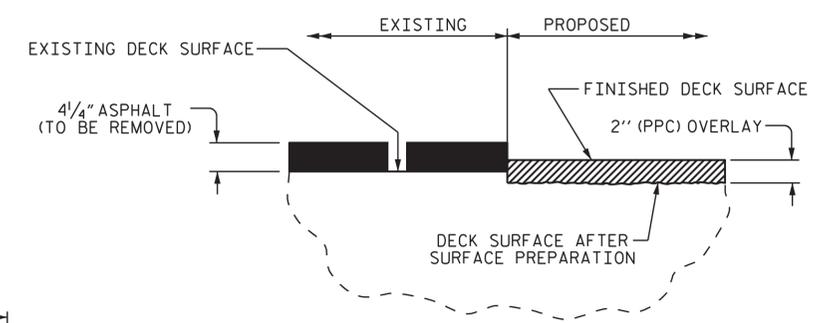


**PROPOSED TYPICAL SECTION (EBL)**



**STAGED POLYESTER POLYMER CONCRETE OVERLAY JOINT (AS NEEDED)**

**NOTES**  
 SEE TRANSPORTATION MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF OVERLAY SURFACE PREPARATION AND POLYESTER POLYMER CONCRETE PLACEMENT.  
 SEE APPROACH MILLING AND TYPICAL ROADWAY SECTIONS SHEET.



**DETAIL OF POLYESTER POLYMER CONCRETE OVERLAY**  
 NOTE: THE PPC OVERLAY SHALL BE FINISHED TO A 45° SLOPE TO THE EXISTING DECK ALONG THE LONGITUDINAL EDGE ADJACENT TO THE MEDIAN.

PROJECT NO. 15BPR.31  
WAYNE COUNTY  
 BRIDGE NO: 950078



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**TYPICAL SECTION AND PPC OVERLAY DETAIL (EBL)**

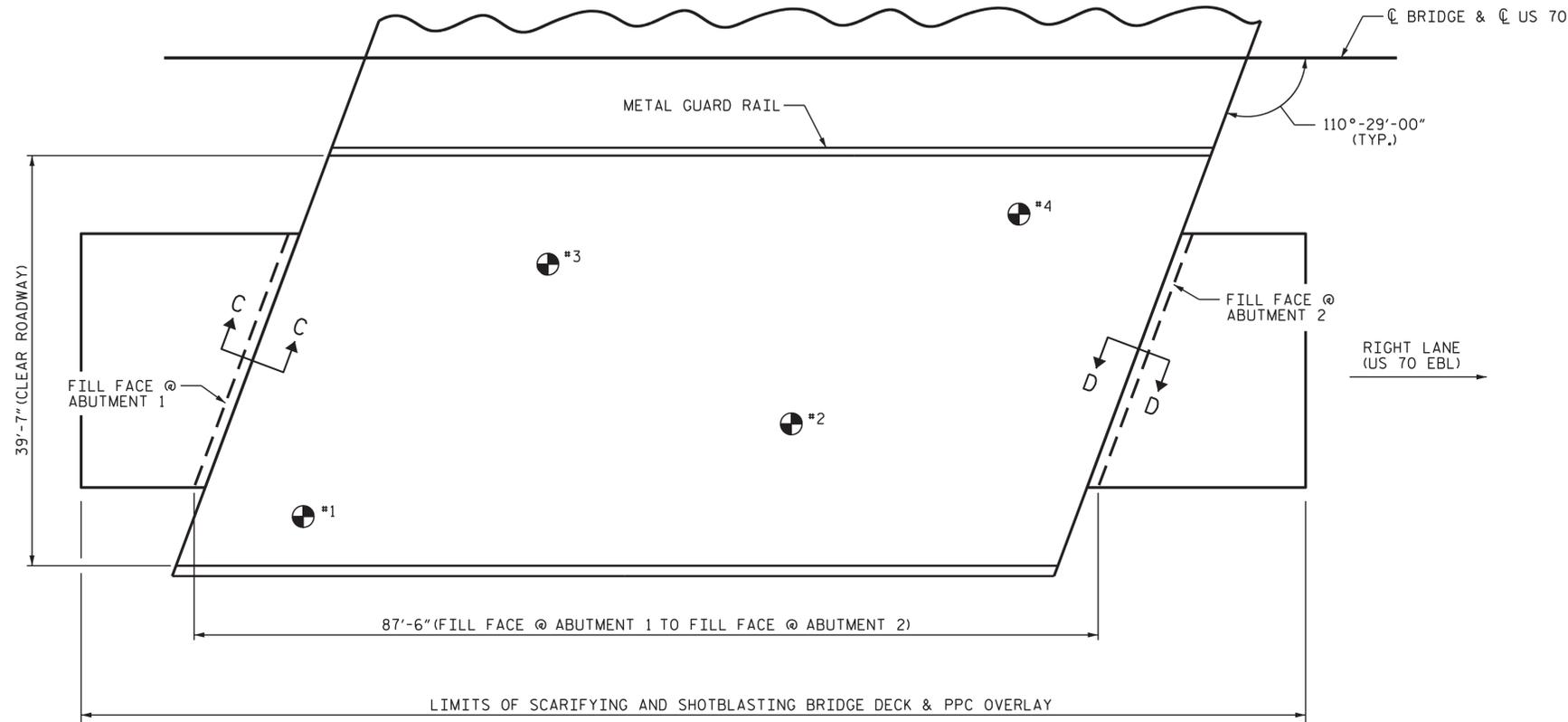
DRAWN BY : P.N.HOLDER DATE : 08/18  
 CHECKED BY : D.A.GLADDEN DATE : 09/18

04-JAN-2019 11:04  
 david.gladden AT C-160003

**VOLKERT**  
 5540 Centerview Drive, Suite 305  
 Raleigh, NC 27606  
 Tel. 919-854-0344 Fax. 919-854-0355  
 NC License No. F-0765

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			5-6
2			4			16



PLAN OF SPAN A (EBL)

NOTES

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE AS-BUILT REPAIR QUANTITY TABLE.

FOR SECTION C-C AND D-D, SEE "JOINT REPAIR DETAILS (EBL)" SHEET.

FOR POURABLE SILICONE JOINT SEALANT, SEE SPECIAL PROVISIONS.

AS-BUILT REPAIR QUANTITY TABLE

TOP OF DECK REPAIRS (EBL)		
APPROACH SLAB @ ABUTMENT 1		
	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	45 SY	
* CLASS II SURFACE PREPARATION	2.3 SY	
* CONCRETE DECK REPAIR FOR PPC OVERLAY	2.3 SY	
SHOTBLASTING BRIDGE DECK	45 SY	
PPC MATERIALS	2.5 CY	
PLACING AND FINISHING PPC OVERLAY	45 SY	
GROOVING BRIDGE FLOORS	349 SF	

SPAN A		
	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	376 SY	
* CLASS II SURFACE PREPARATION	19 SY	
* CONCRETE DECK REPAIR FOR PPC OVERLAY	19 SY	
SHOTBLASTING BRIDGE DECK	376 SY	
PPC MATERIALS	20.9 CY	
PLACING AND FINISHING PPC OVERLAY	376 SY	
GROOVING BRIDGE FLOORS	3110 SF	

APPROACH SLAB @ ABUTMENT 2		
	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	45 SY	
* CLASS II SURFACE PREPARATION	2.3 SY	
* CONCRETE DECK REPAIR FOR PPC OVERLAY	2.3 SY	
SHOTBLASTING BRIDGE DECK	45 SY	
PPC MATERIALS	2.5 CY	
PLACING AND FINISHING PPC OVERLAY	45 SY	
GROOVING BRIDGE FLOORS	349 SF	

QUANTITIES IN TABLE REPRESENT ESTIMATED VALUES OF CLASS II SURFACE PREPARATION AND CONCRETE DECK REPAIR FOR PPC OVERLAY AFTER REMOVAL OF UNSOUND CONCRETE (MINIMUM 2" CLEAR TO SAWCUT). SEE OVERLAY SURFACE PREPARATION FOR POLYESTER POLYMER CONCRETE SPECIAL PROVISION.

\* CLASS II SURFACE PREPARATION AND CONCRETE DECK REPAIR FOR PPC OVERLAY ARE NOT ANTICIPATED. TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSES, IN CASE UNANTICIPATED CLASS II SURFACE PREPARATION ARE ENCOUNTERED.

TEST LOCATION	ASPHALT DEPTH (INCH)
#1	4 1/4"
#2	4 1/4"
#3	3 3/4"
#4	3 1/4"

INFORMATION IN CHART IS TAKEN FROM THE DECK EVALUATION DATED 6/24/2018

● TEST LOCATION

PROJECT NO. 15BPR.31  
 WAYNE COUNTY  
 BRIDGE NO: 950078



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

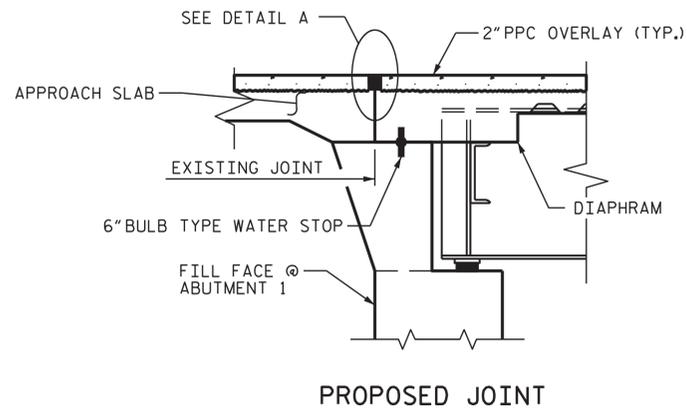
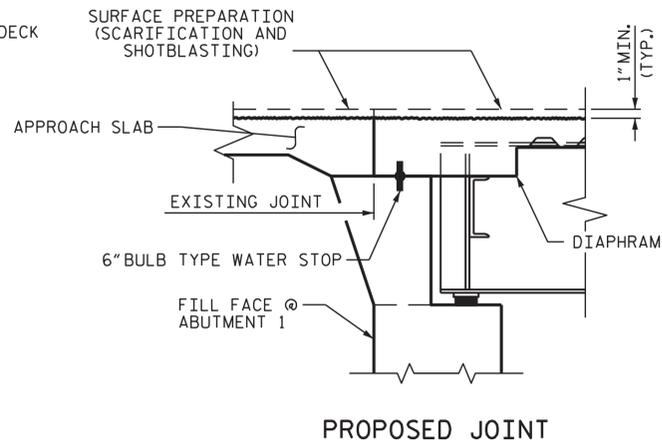
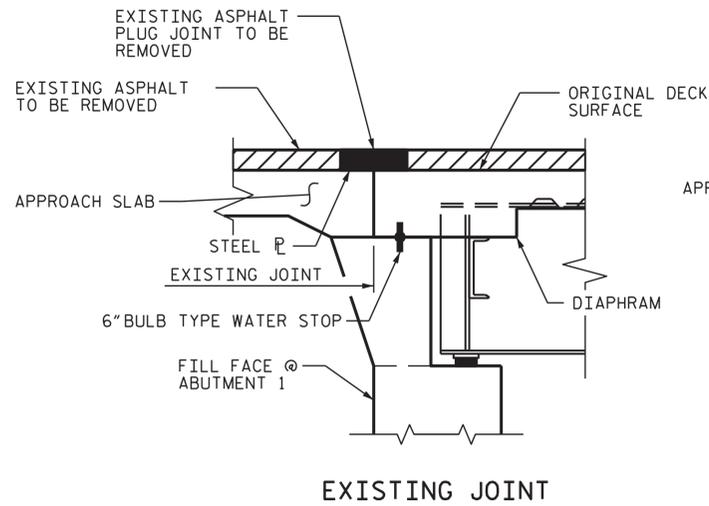
PLAN OF SPAN A  
 RIGHT LANE (EBL)

DRAWN BY : P.N.HOLDER DATE : 08/18  
 CHECKED BY : D.A.GLADDEN DATE : 09/18

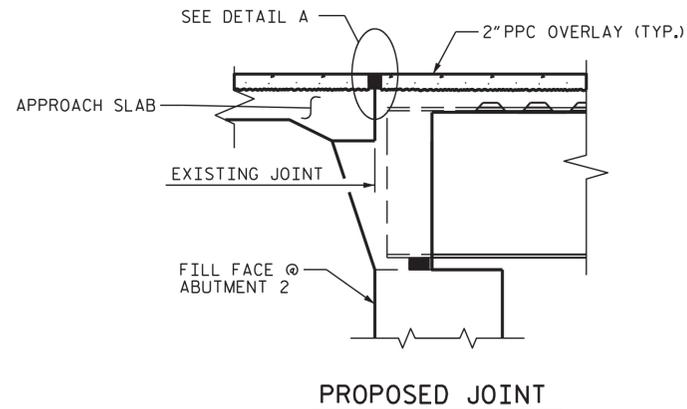
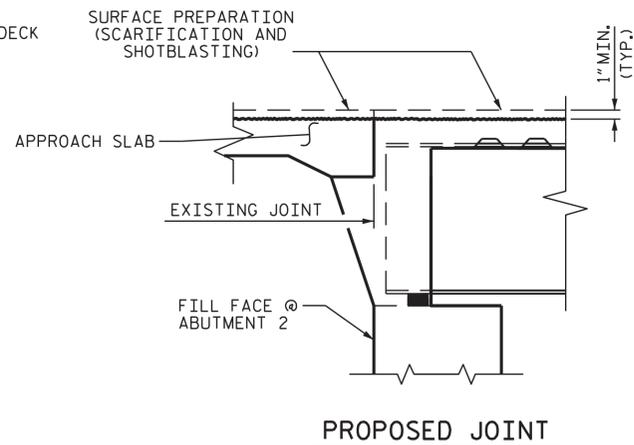
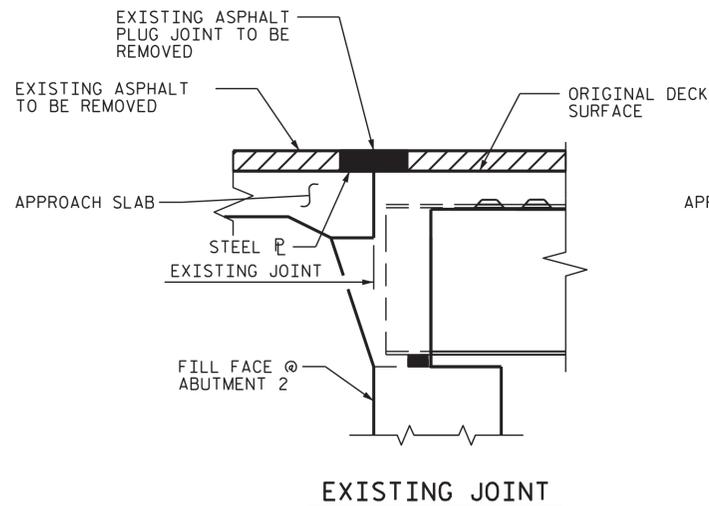
**VOLKERT**  
 5540 Centerview Drive, Suite 305  
 Raleigh, NC 27606  
 Tel. 919-854-0344 Fax. 919-854-0355  
 NC License No. F-0765

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			16



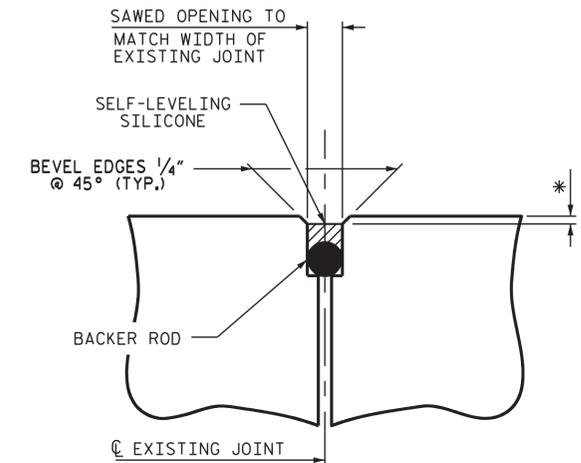
**JOINT INSTALLATION SEQUENCE AT ABUTMENT 1 (EBL)**  
(SECTION C-C)



**JOINT INSTALLATION SEQUENCE AT ABUTMENT 2 (EBL)**  
(SECTION D-D)

**NOTES**

- THE CONTRACTOR SHALL FIELD VERIFY THE EXISTING FORMED OPENING PRIOR TO OBTAINING JOINT MATERIAL.
- THE CONTRACTOR WILL NOT BE PERMITTED TO FORM THE JOINTS FOR THE JOINT SEALS IN LIEU OF SAWING THE JOINTS.
- FOR POURABLE SILICONE JOINT SEALANT, SEE SPECIAL PROVISIONS.
- POURABLE SILICONE JOINT SEALANT AND BACKER ROD SHALL BE INSTALLED AS PER MANUFACTURER'S RECOMMENDATION.
- THE INSTALLED SILICONE JOINT SEALS SHALL BE WATERTIGHT.
- FOR LOCATION OF SECTION C-C & D-D, SEE PLAN OF SPAN SHEETS.



**DETAIL A**

\* SILICONE JOINT SEALANT SHALL BE RECESSED AS PER MANUFACTURER'S RECOMMENDATIONS.

PROJECT NO. 15BPR.31  
WAYNE COUNTY  
 BRIDGE NO: 950078



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**JOINT REPAIR  
 DETAILS  
 (EBL)**

**VOLKERT**  
 5540 Centerview Drive, Suite 305  
 Raleigh, NC 27606  
 Tel. 919-854-0344 Fax. 919-854-0355  
 NC License No. F-0765

DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			5-8
2			4			16

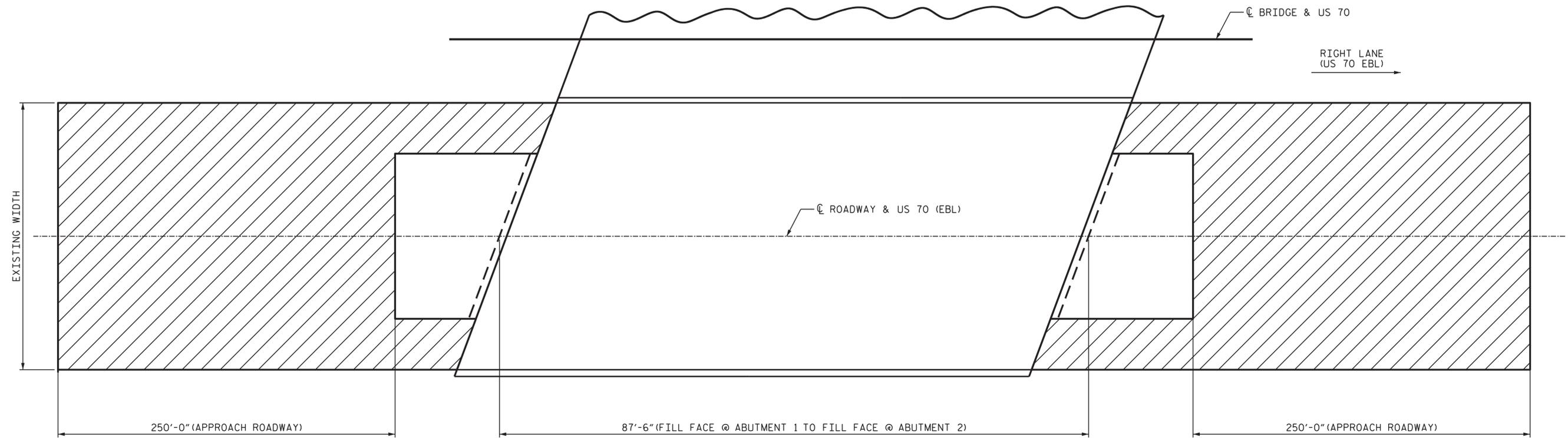
DRAWN BY : P.N.HOLDER DATE : 09/18  
 CHECKED BY : D.A.GLADDEN DATE : 09/18

**NOTES**

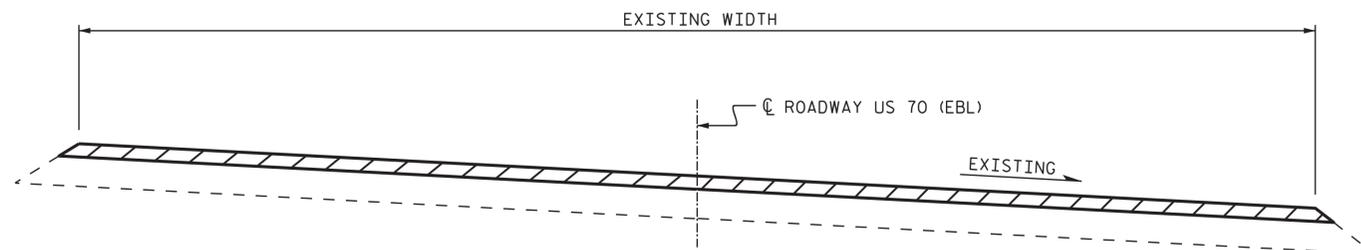
INCIDENTAL MILLING - EXISTING APPROACH ASPHALT PAVING TO BE MILLED AS NECESSARY TO ATTAIN MINIMUM 1/2" DEPTH OF NEW ASPHALT PAVING.

PROVIDE NEW ASPHALT PAVING THICKNESS TO CREATE A SMOOTH TRANSITION BETWEEN THE ROADWAY AND THE BRIDGE DECK.

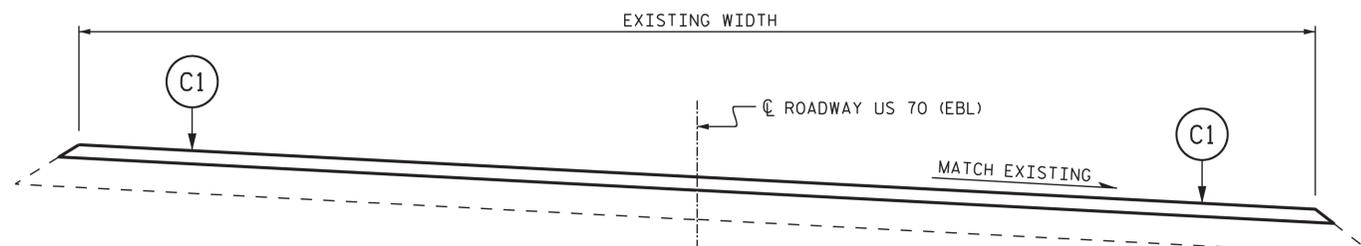
NEW ASPHALT PAVING THICKNESS MAY EXCEED 1/2" DUE TO SETTLEMENT OF THE EXISTING APPROACH ASPHALT PAVING.



**PLAN (EBL)**



**TYPICAL ROADWAY MILLING SECTION**



**TYPICAL PROPOSED ROADWAY SECTION**

C1	PROPOSED VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AND AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1/2" IN DEPTH OF GREATER THAN 2" IN DEPTH.
----	--

SUMMARY OF QUANTITIES		
	ESTIMATE	ACTUAL
INCIDENTAL MILLING	2302 SQ. YD.	
ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C	194.3 TONS	
ASPHALT BINDER FOR PLANT MIX	11.7 TONS	

PROJECT NO. 15BPR.31  
WAYNE COUNTY  
 BRIDGE NO: 950078



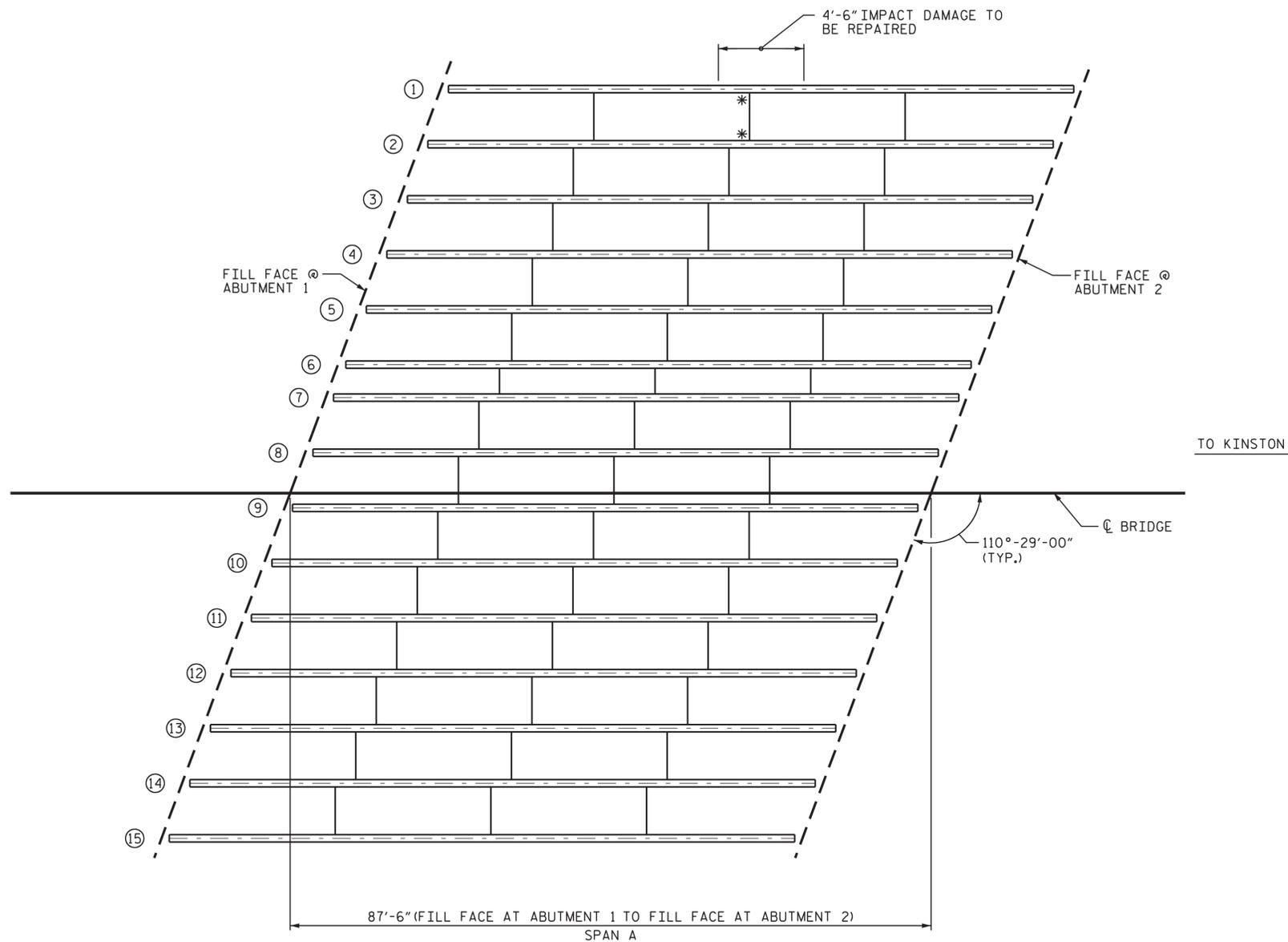
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**APPROACH MILLING  
 AND TYPICAL ROADWAY  
 SECTIONS**

**VOLKERT**  
 5540 Centerview Drive, Suite 305  
 Raleigh, NC 27606  
 Tel. 919-854-0344 Fax. 919-854-0355  
 NC License No. F-0765

DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			S-9
2			4			16

DRAWN BY : P.N.HOLDER DATE : 09/18  
 CHECKED BY : D.A.GLADDEN DATE : 09/18



**FRAMING PLAN**

**NOTES**

THE LOCATION AND DIMENSION OF THE AREA FOR REPAIR IS BASED ON THE BEST INFORMATION AVAILABLE. THE CONTRACTOR IN CONJUNCTION WITH THE ENGINEER, SHALL VERIFY THE LOCATION AND EXTENT OF REPAIR AREA PRIOR TO PERFORMING REPAIR.

\* DIAPHRAGM AND CONNECTOR PLATES ARE TWISTED AND OUT OF PLUMB. DIAPHRAGM TORN AWAY FROM CONNECTOR PLATE.

FOR REPAIRS OF DAMAGED STEEL BEAMS, SEE SPECIAL PROVISIONS.

PROJECT NO. 15BPR.31  
WAYNE COUNTY  
 BRIDGE NO: 950078

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**FRAMING PLAN**  
 BEAM REPAIR LOCATION



1/5/2019

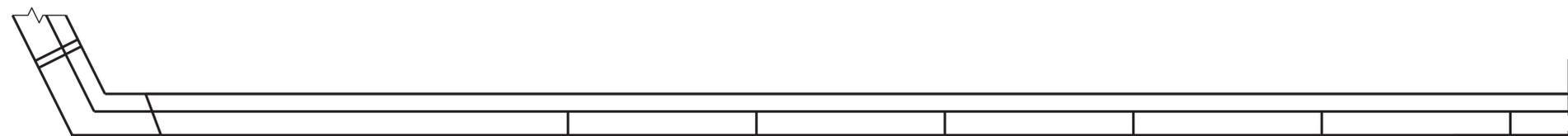
**VOLKERT**

5540 Centerview Drive, Suite 305  
 Raleigh, NC 27606  
 Tel. 919-854-0344 Fax. 919-854-0355  
 NC License No. F-0765

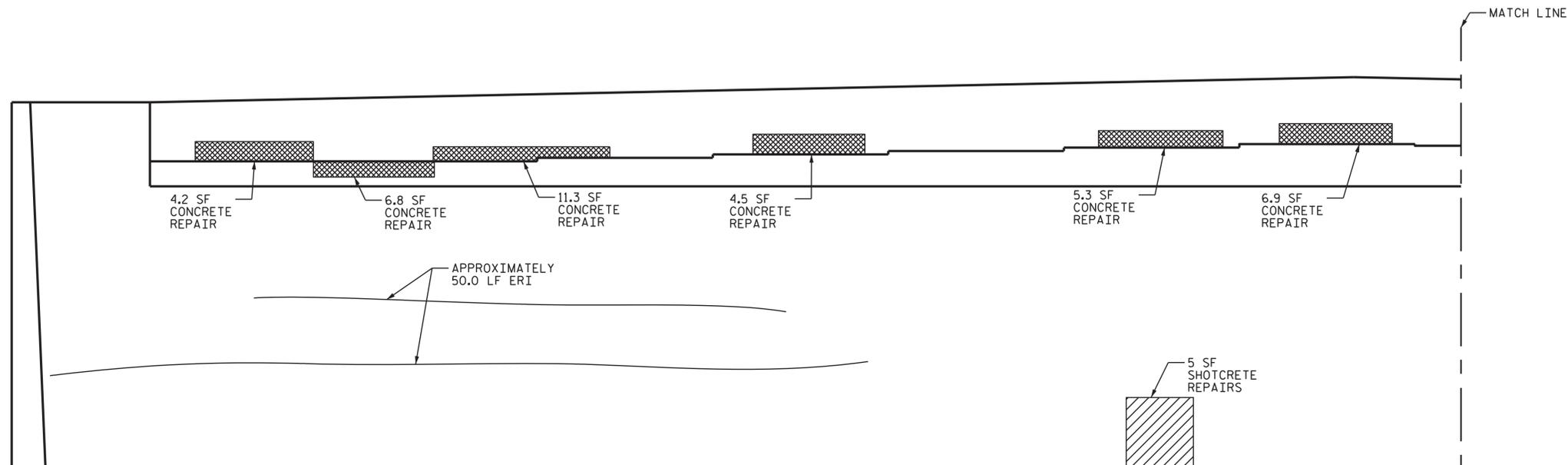
DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			16

DRAWN BY : R. G. BEAUCHAMP DATE : 08/18  
 CHECKED BY : D. A. GLADDEN DATE : 09/18



TOP OF CAP AT ABUTMENT 1 (LEFT SIDE)



ELEVATION AT ABUTMENT 1 (LEFT SIDE)

**AS-BUILT REPAIR QUANTITY TABLE**

REPAIRS ABUT. 1	QUANTITIES		ACTUAL
	ESTIMATE		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	
	ABUTMENT 1	5.0	2.5
CONCRETE REPAIRS	AREA SF	VOLUME CF	
	ABUTMENT 1	39.0	19.5
EPOXY RESIN INJECTION		LN. FT	
	ABUTMENT 1	50.0	

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND 2" MIN. CLEAR TO SAWCUT. SEE REPAIR DETAILS.

- CONCRETE REPAIR
- SHOTCRETE REPAIR
- EPOXY RESIN INJECTION (ERI)

**NOTES**

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR SUMMARY OF QUANTITIES TABLE.

FOR CAP REPAIRS, SEE "TYPICAL CAP AND ABUTMENT REPAIR DETAILS" SHEET.

CONCRETE REPAIRS MAY BE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

PROJECT NO. 15BPR.31  
WAYNE COUNTY  
 BRIDGE NO. 950078

SHEET 1 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**ABUTMENT 1  
 (LEFT SIDE)**



1/5/2019

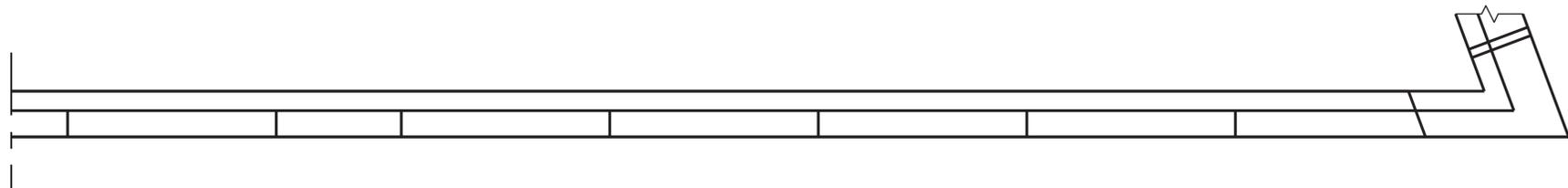
**VOLKERT**

5540 Centerview Drive, Suite 305  
 Raleigh, NC 27606  
 Tel. 919-854-0344 Fax. 919-854-0355  
 NC License No. F-0765

DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

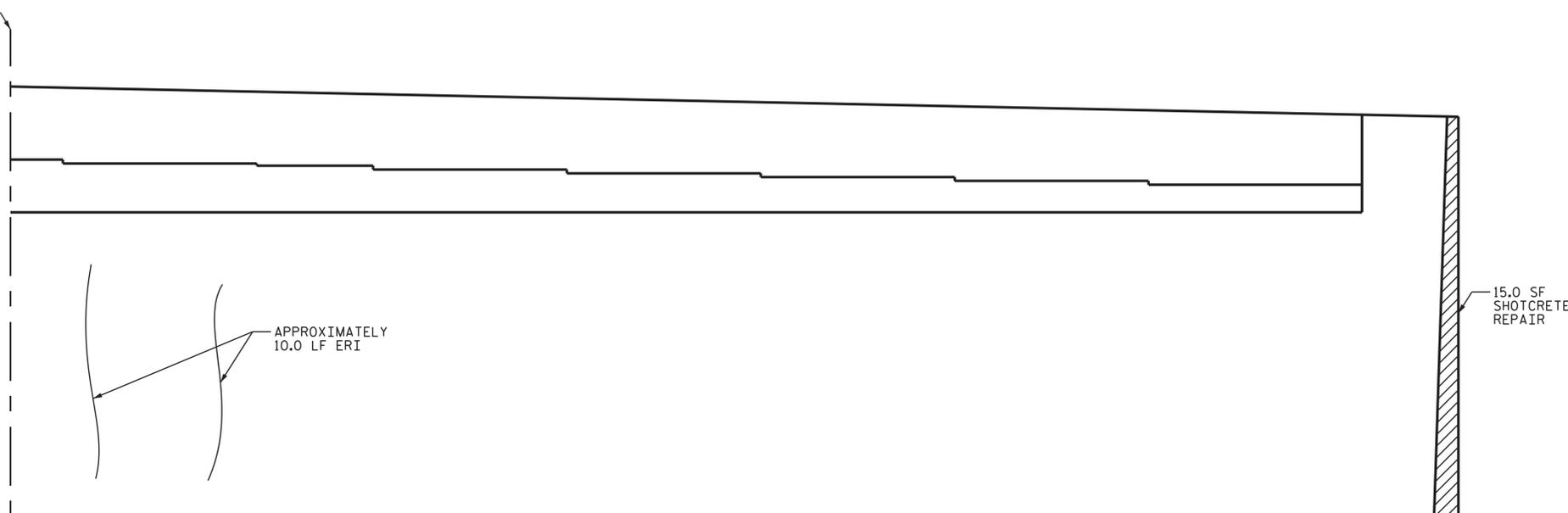
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			16

DRAWN BY : R. G. BEAUCHAMP DATE : 09/18  
 CHECKED BY : D. A. GLADDEN DATE : 09/18



TOP OF CAP AT ABUTMENT 1 (RIGHT SIDE)

MATCH LINE



ELEVATION AT ABUTMENT 1 (RIGHT SIDE)

**AS-BUILT REPAIR QUANTITY TABLE**

REPAIRS ABUT. 1	QUANTITIES		ACTUAL
	ESTIMATE		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	
	ABUTMENT 1	15.0	7.5
CONCRETE REPAIRS	AREA SF	VOLUME CF	
	ABUTMENT 1	0.0	0.0
EPOXY RESIN INJECTION	LN. FT		
	ABUTMENT 1	10.0	

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND 2" MIN. CLEAR TO SAWCUT. SEE REPAIR DETAILS.

-  CONCRETE REPAIR
-  SHOTCRETE REPAIR
-  EPOXY RESIN INJECTION (ERI)

**NOTES**

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR SUMMARY OF QUANTITIES TABLE.

FOR CAP REPAIRS, SEE "TYPICAL CAP AND ABUTMENT REPAIR DETAILS" SHEET.

CONCRETE REPAIRS MAY BE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

PROJECT NO. 15BPR.31  
WAYNE COUNTY  
 BRIDGE NO. 950078

SHEET 2 OF 2



1/5/2019

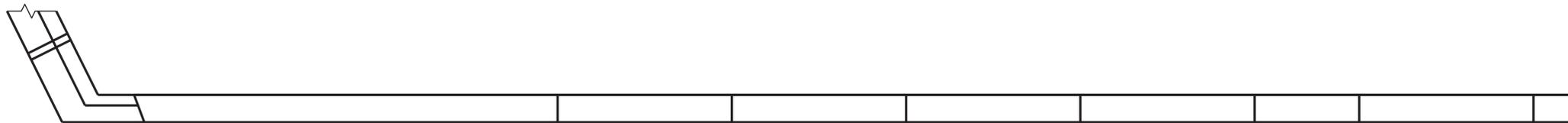
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**ABUTMENT 1  
 (RIGHT SIDE)**

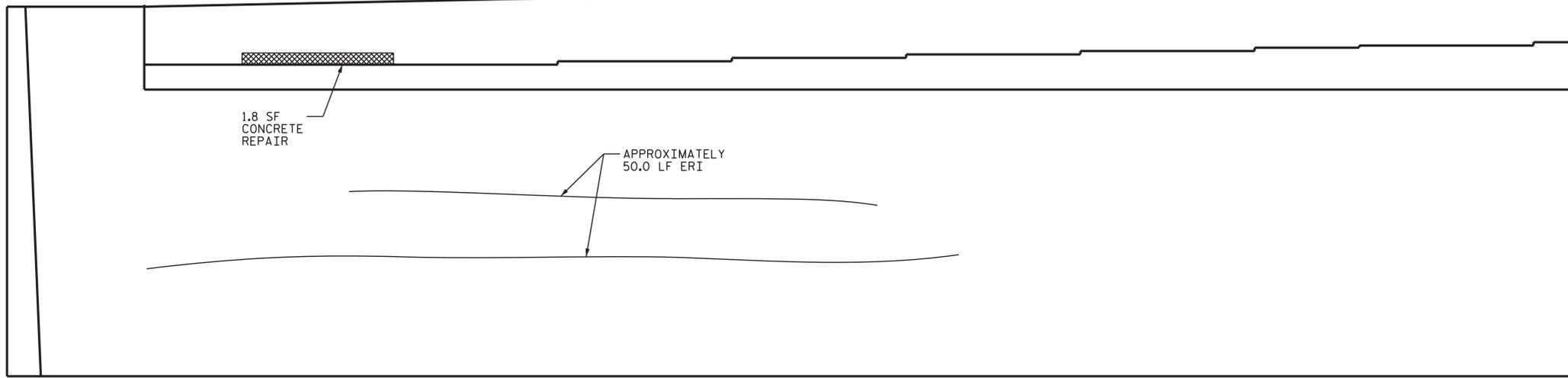
**VOLKERT**  
 5540 Centerview Drive, Suite 305  
 Raleigh, NC 27606  
 Tel. 919-854-0344 Fax. 919-854-0355  
 NC License No. F-0765

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS
2			4			16

DRAWN BY : R. G. BEAUCHAMP DATE : 09/18  
 CHECKED BY : D. A. GLADDEN DATE : 09/18



TOP OF CAP AT ABUTMENT 2 (LEFT SIDE)



ELEVATION AT ABUTMENT 2 (LEFT SIDE)

**AS-BUILT REPAIR QUANTITY TABLE**

REPAIRS ABUT. 2	QUANTITIES		ACTUAL
	ESTIMATE		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	
	ABUTMENT 2	0.0	0.0
CONCRETE REPAIRS	AREA SF	VOLUME CF	
	ABUTMENT 2	1.8	0.9
EPOXY RESIN INJECTION	LN. FT		
	ABUTMENT 2	50.0	

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND 2" MIN. CLEAR TO SAWCUT. SEE REPAIR DETAILS.

SEE TYPICAL CAP AND ABUTMENT REPAIR DETAILS S16 OF S17

- CONCRETE REPAIR
- SHOTCRETE REPAIR
- EPOXY RESIN INJECTION (ERI)

**NOTES**

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR SUMMARY OF QUANTITIES TABLE.

FOR CAP REPAIRS, SEE "TYPICAL CAP AND ABUTMENT REPAIR DETAILS" SHEET.

CONCRETE REPAIRS MAY BE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

PROJECT NO. 15BPR.31  
WAYNE COUNTY  
 BRIDGE NO. 950078

SHEET 1 OF 2



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

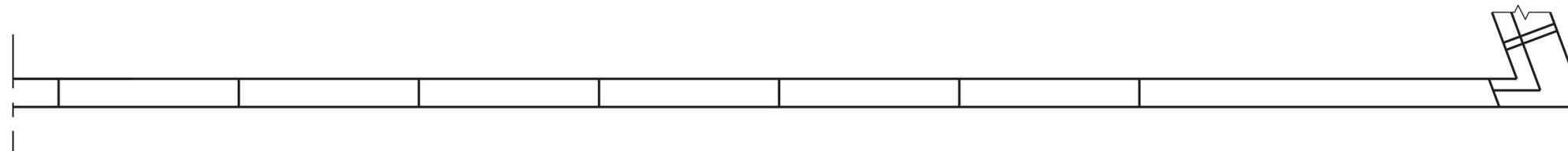
**ABUTMENT 2  
 (LEFT SIDE)**

VOLKERT

5540 Centerview Drive, Suite 305  
 Raleigh, NC 27606  
 Tel. 919-854-0344 Fax. 919-854-0355  
 NC License No. F-0765

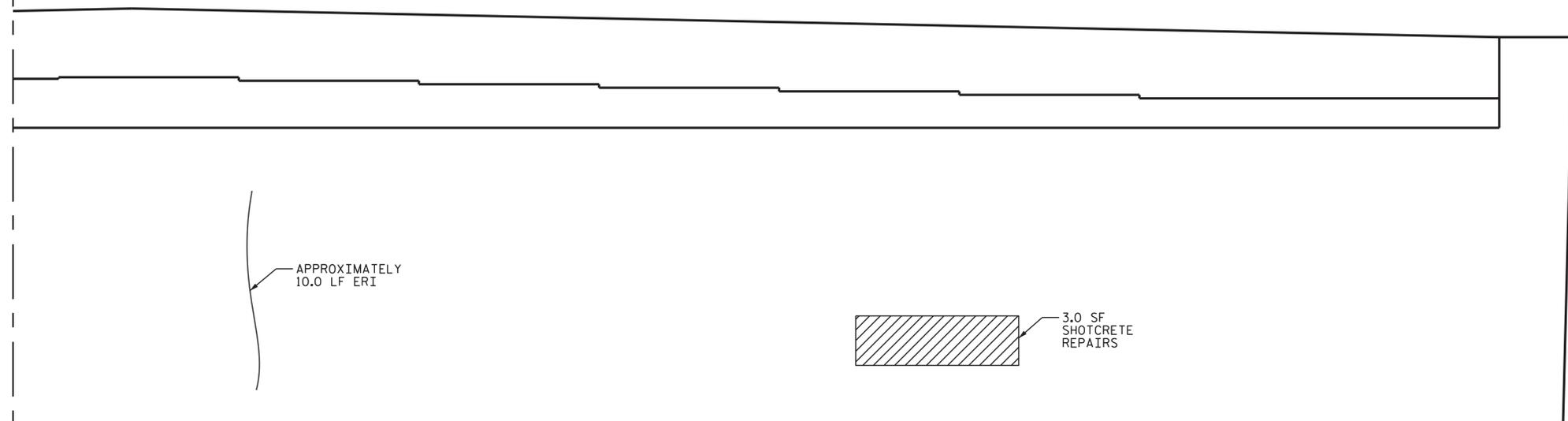
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			16

DRAWN BY : R. G. BEAUCHAMP DATE : 09/18  
 CHECKED BY : D. A. GLADDEN DATE : 09/18



TOP OF CAP AT ABUTMENT 2 (RIGHT SIDE)

MATCH LINE



APPROXIMATELY  
10.0 LF ERI

3.0 SF  
SHOTCRETE  
REPAIRS

ELEVATION AT ABUTMENT 2 (RIGHT SIDE)

**AS-BUILT REPAIR QUANTITY TABLE**

REPAIRS ABUT. 2	QUANTITIES	
	ESTIMATE	ACTUAL
SHOTCRETE REPAIRS	AREA SF	VOLUME CF
	ABUTMENT 2	3.0 1.5
CONCRETE REPAIRS	AREA SF	VOLUME CF
	ABUTMENT 2	0.0 0.0
EPOXY RESIN INJECTION	LN. FT	
	ABUTMENT 2	10.0

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND 2" MIN. CLEAR TO SAWCUT. SEE REPAIR DETAILS.

SEE TYPICAL CAP AND ABUTMENT REPAIR DETAILS S16 OF S17

- CONCRETE REPAIR
- SHOTCRETE REPAIR
- EPOXY RESIN INJECTION (ERI)

**NOTES**

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS, AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR SUMMARY OF QUANTITIES TABLE.

FOR CAP REPAIRS, SEE "TYPICAL CAP AND ABUTMENT REPAIR DETAILS" SHEET.

CONCRETE REPAIRS MAY BE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

PROJECT NO. 15BPR.31  
WAYNE COUNTY  
 BRIDGE NO. 950078

SHEET 2 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

ABUTMENT 2  
 (RIGHT SIDE)

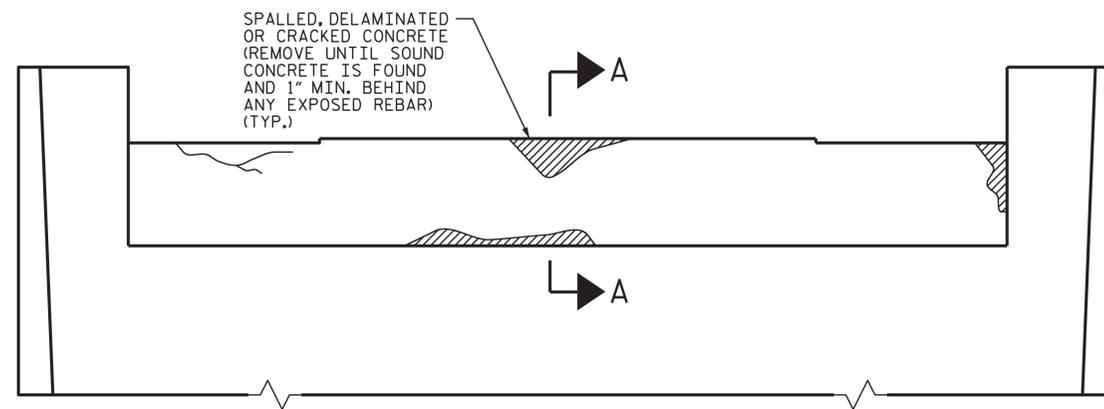


**VOLKERT**  
 5540 Centerview Drive, Suite 305  
 Raleigh, NC 27606  
 Tel. 919-854-0344 Fax. 919-854-0355  
 NC License No. F-0765

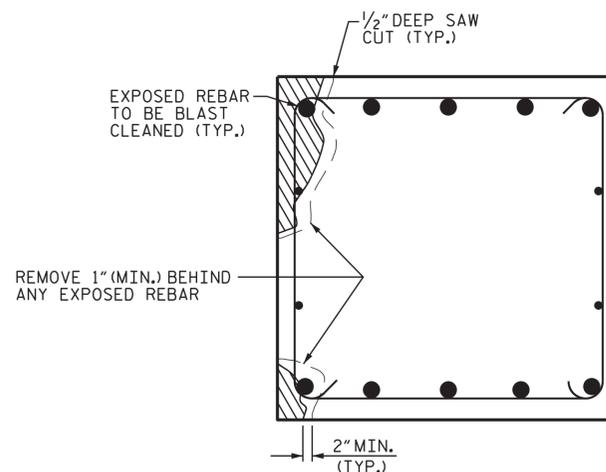
DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			16
2			4			

DRAWN BY : R. G. BEAUCHAMP DATE : 09/18  
 CHECKED BY : D. A. GLADDEN DATE : 09/18



ABUTMENT REPAIRS



SECTION A-A

ABUTMENT REPAIR

NOTES

TYPICAL BENT CAP REPAIRS ARE SHOWN. REPAIR DETAILS SIMILAR FOR END BENT CAPS AND STRUTS.

THE METHOD USED TO DELINEATE THE AREAS OF UNSOUND CONCRETE TO BE REPAIRED SHALL NOT PERMANENTLY MARK THE CONCRETE, LEAVE ANY RESIDUE AFTER REMOVAL OR REQUIRE HARSH CHEMICALS TO REMOVE.

THE CONTRACTOR SHALL REMOVE THE DETERIORATED CONCRETE IN ACCORDANCE WITH THE GUIDELINES SET IN THESE NOTES, IN THE SPECIAL PROVISIONS AND THE STANDARD SPECIFICATIONS.

REMOVE UNSOUND CONCRETE TO THE EXTENT NECESSARY, MINIMUM OF 1" BEHIND REBAR AND MINIMUM OF 2" CLEARANCE TO SAWCUT.

NO MORE THAN ONE-THIRD OF THE CAP OR COLUMN CROSS SECTIONAL AREA SHALL BE REMOVED AT ONE TIME. SHOULD IT BECOME NECESSARY TO REMOVE MORE THAN 30% OF A CAP OR COLUMN CROSS SECTIONAL AREA, NOTIFY THE ENGINEER PRIOR TO PROCEEDING.

SIMULTANEOUS REMOVAL OF UNSOUND CONCRETE MAY BE PERMITTED ON MORE THAN ONE FACE OF A CAP AND/OR COLUMN, IF THE AREAS OF REMOVAL ARE NOT ADJACENT TO OR DIRECTLY OPPOSITE ONE ANOTHER. IF REMOVAL EXTENDS MORE THAN 1 1/2" BEHIND THE MAIN REINFORCING BARS, NOTIFY THE ENGINEER PRIOR TO PROCEEDING.

REINFORCING STEEL WHICH IS DETERMINED BY THE ENGINEER TO BE REPLACED, SHALL BE REMOVED TO A POINT WHERE IT IS SOUND. THE PATCH SHALL EXTEND A SUFFICIENT DISTANCE BEYOND THIS POINT TO DEVELOP A SPLICE LENGTH SPECIFIED IN THE TABLE ON THIS SHEET.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION (ERI), SEE SPECIAL PROVISIONS.

PROJECT NO. 15BPR.31  
WAYNE COUNTY  
 BRIDGE NO: 950078



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE  
 TYPICAL CAP AND ABUTMENT  
 REPAIR DETAILS

DRAWN BY : R.G. BEAUCHAMP DATE : 09/18  
 CHECKED BY : D.A. GLADDEN DATE : 09/18

**VOLKERT**  
 5540 Centerview Drive, Suite 305  
 Raleigh, NC 27606  
 Tel. 919-854-0344 Fax. 919-854-0355  
 NC License No. F-0765

DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			S-15
2			4			16

**BRIDGE JACKING NOTES:**

THIS DETAIL IS A GENERIC EXAMPLE OF A JACKING SCHEME AND DOES NOT NECESSARILY REPRESENT SPECIFIC CONDITIONS AT A PARTICULAR BRIDGE. ACTUAL BRIDGE GEOMETRIES, DIMENSIONS, AND CONDITIONS MAY DIFFER FROM THIS DETAIL. PRIOR TO BEGINNING WORK, THE CONTRACTOR SHALL INVESTIGATE THE BRIDGES ON THE PROJECT AND DEVELOP A JACKING PLAN TO BE SUBMITTED FOR REVIEW AND APPROVAL. SEE BRIDGE JACKING SPECIAL PROVISION.

PRIOR TO BRIDGE JACKING OPERATIONS, THE ENGINEER AND CONTRACTOR SHALL INSPECT THE STRUCTURE FOR ANY NOTABLE DEFECTS TO THE PRIMARY AND SECONDARY STRUCTURAL MEMBERS. ALL NOTABLE DEFECTS SHALL BE DOCUMENTED AND REPORTED TO THE AREA BRIDGE MAINTENANCE ENGINEER PRIOR TO COMMENCEMENT OF ANY BRIDGE JACKING. THE CONTRACTOR SHALL PROVIDE SAFE AND SUFFICIENT ACCESS TO ALL STRUCTURAL MEMBERS FOR THE ENGINEER TO ESTABLISH PROPER DOCUMENTATION.

PRIOR TO JACKING, THE CONTRACTOR SHALL ENSURE THERE ARE NO OBSTACLES PREVENTING THE BEAM FROM BEING LIFTED.

THE BEAM SHALL BE LIFTED ENOUGH THAT THE BEAM CLEARS THE BEARINGS AND ALL LOAD IS SUPPORTED BY THE JACKS. AFTER JACKING IS COMPLETE, THE CONTRACTOR SHALL PROVIDE FOR A METHOD TO REMOVE THE JACKS AND SUPPORT THE BEAM FOR DEAD AND LIVE LOAD DURING THE REPAIR OPERATIONS. IF THE JACKS REMAIN IN PLACE DURING THE ENTIRE JACKING AND REPAIR OPERATION, THEY SHALL HAVE MECHANICAL LOCK OFF CAPABILITIES.

IF, DURING THE JACKING PROCESS, OR WHILE THE BEAM IS BEING SUPPORTED, THE BEAM SHIFTS FROM ITS ORIGINAL POSITION, ALL WORK SHALL CEASE AND THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY.

BEARINGS ADJACENT TO THE BEAM BEING JACKED MAY BE LOOSENED TO DECREASE THE RESISTANCE OF THE DECK SLAB DURING JACKING. ALL BEARINGS LOOSENED SHALL BE TIGHTENED BACK AFTER REPAIR OPERATIONS ARE COMPLETED AND THE JACKS AND BLOCKING HAVE BEEN REMOVED.

THE MAXIMUM DIFFERENTIAL BETWEEN ADJACENT BEAMS THAT ARE BEING JACKED IS 1/8".

LOADS PROVIDED IN THE "BRIDGE JACKING TABLE" ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY, THE CONTRACTOR'S ENGINEER SHALL DETERMINE THE EXPECTED LOADS TO BE LIFTED DURING THE BRIDGE JACKING OPERATIONS.

THE CONTRACTOR SHALL SUBMIT WORKING DRAWINGS AND CALCULATIONS OF THE JACKING PROCEDURE(S) SEALED BY A PROFESSIONAL ENGINEER IN THE STATE OF NORTH CAROLINA TO THE ENGINEER FOR APPROVAL PRIOR TO BRIDGE JACKING OPERATIONS.

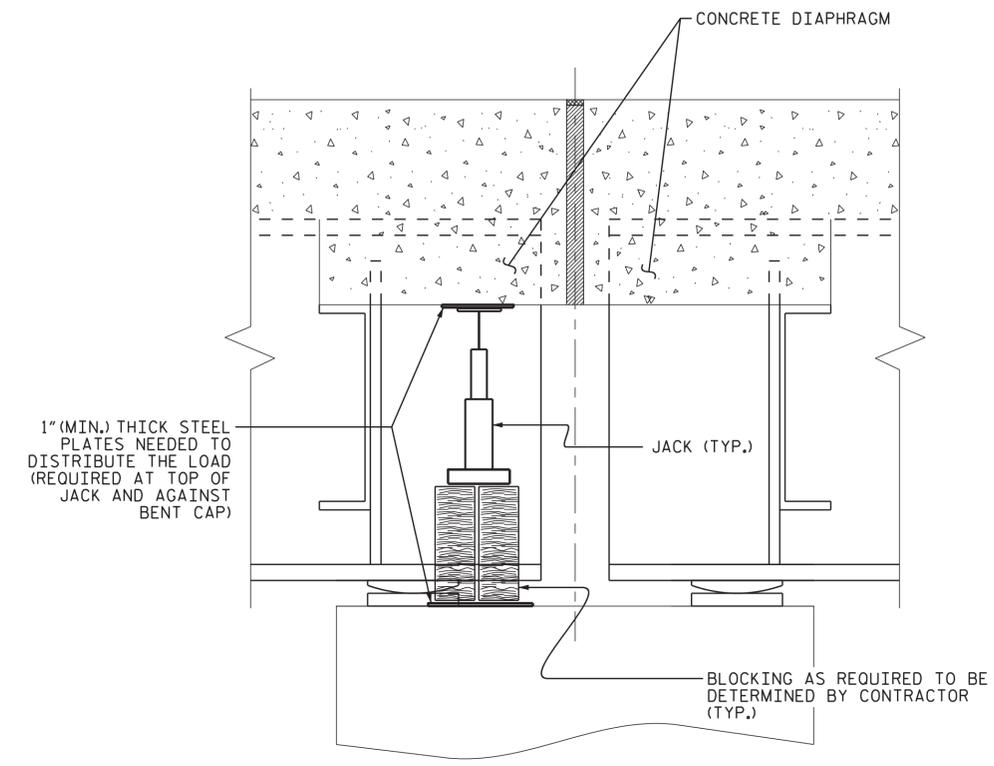
FOR TYPE I OR TYPE II BRIDGE JACKING, SEE SPECIAL PROVISIONS.

FOR WORKING DRAWING SUBMITTALS, SEE SPECIAL PROVISIONS.

ANY STEEL THAT HAS BEEN WELDED TO THE EXISTING STRUCTURE SHALL REMAIN IN PLACE.

TYPE II BRIDGE JACKING SHALL BE DONE WITH A HYDRAULIC JACKING SYSTEM THAT LIFTS EACH BEAM ALONG ENTIRE SPAN END WITH EQUAL FORCE AND AT AN EQUAL RATE.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY DAMAGE CAUSED TO THE EXISTING STRUCTURE BY BRIDGE JACKING OPERATIONS AT NO ADDITIONAL COST TO THE DEPARTMENT.



**SECTION THRU DIAPHRAGM**

BRIDGE JACKING TABLE				
LOCATION	SPAN	BEAM(S)	BRIDGE JACKING TYPE	DEAD LOAD (DC+DW) (KIPS)
END BENT 1	A	14	TYPE I	56.9 K
BENT 1				
BENT 2				
END BENT 2				

PROJ. NO. 15BPR.31  
WAYNE COUNTY  
 BRIDGE NO. 950078



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 STANDARD  
**BRIDGE JACKING  
 DETAILS**

**VOLKERT**  
 5540 Centerview Drive, Suite 305  
 Raleigh, NC 27606  
 Tel. 919-854-0344 Fax. 919-854-0355  
 NC License No. F-0765

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-16
2			4			TOTAL SHEETS 16

ASSEMBLED BY : P. N. HOLDER DATE : 09/18  
 CHECKED BY : D. A. GLADDEN DATE : 09/18  
 DRAWN BY : NAP 08/18  
 CHECKED BY :

## STANDARD NOTES

### DESIGN DATA:

SPECIFICATIONS	-----	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	-----	SEE PLANS
IMPACT ALLOWANCE	-----	SEE A.A.S.H.T.O.
STRESS IN EXTREME FIBER OF STRUCTURAL STEEL - AASHTO M270 GRADE 36	--	20,000 LBS. PER SQ. IN.
	--	27,000 LBS. PER SQ. IN.
	--	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION - GRADE 60	----	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	-----	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	-----	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER - TREATED OR UNTREATED EXTREME FIBER STRESS	----	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	-----	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	-----	30 LBS. PER CU. FT. (MINIMUM)

### MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2018 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N.C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

### CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

### CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED  $\frac{3}{4}$ " WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO  $\frac{1}{2}$ " RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A  $\frac{1}{4}$ " FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A  $\frac{1}{4}$ " RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

### DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

### ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

### REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

### STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE  $\frac{7}{8}$ "  $\emptyset$  SHEAR STUDS FOR THE  $\frac{3}{4}$ "  $\emptyset$  STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 -  $\frac{7}{8}$ "  $\emptyset$  STUDS FOR 4 -  $\frac{3}{4}$ "  $\emptyset$  STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF  $\frac{7}{8}$ "  $\emptyset$  STUDS ALONG THE BEAM AS SHOWN FOR  $\frac{3}{4}$ "  $\emptyset$  STUDS BASED ON THE RATIO OF 3 -  $\frac{7}{8}$ "  $\emptyset$  STUDS FOR 4 -  $\frac{3}{4}$ "  $\emptyset$  STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST  $\frac{3}{16}$ " IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY  $\frac{1}{16}$ " INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

### HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINIS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

### SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.

# ENGLISH

JANUARY, 1990

STD. NO. SN